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Complications of Urogenital Chlamydial Infection in Women

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Abstract. **The objective** of the research was to identify the spectrum of complications in women with chronic urogenital chlamydial infection.

Materials and methods. There were examined 128 women with chronic inflammatory diseases of genital organs at the age of 16-40 years who were diagnosed with urogenital chlamydial infection and 25 apparently healthy women. In both women with chlamydial infection and healthy ones, urogenital chlamydial infection was diagnosed based on the data of clinical examination and the results of laboratory tests (the identification of chlamydial morphological structure on the pathologic specimens stained according to the Romanowsky-Giemsa method; the identification of chlamydial antigens using the direct immunofluorescence technique; the study of Chlamydia trachomatis antibody titers using the enzyme-linked immunosorbent assay).

Results. According to the results of our study, chlamydiae were the most common causes of inflammatory lesions of the urogenital organs in women of different ages leading to different reproductive complications and affecting females mostly at the age of 21-30 years. In women of Group I and Group II, chronic chlamydial disease was detected; disease duration ranged from 6 months to more than 2 years. Miscarriages, infertility (primary, secondary), ectopic pregnancy (tubal, ovarian) were the severest and the most numerous reproductive complications in the examined patients.

Conclusion. Chronic chlamydial infection is the most common disease of the female urinogenital organs leading to a wide spectrum of complications including infertility (primary, secondary), miscarriages, ectopic pregnancy (tubal, ovarian), chronic abdominal pain, sexual dysfunction (low libido, hypo/anorgasmia, painful intercourse, neurotic symptoms).

Keywords: urogenital chlamydial infection; complications; infertility; miscarriages; ectopic pregnancy; chronic abdominal pain; sexual dysfunction.

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Color Vision Deficiency in Medical Students in Jammu & Kashmir, India

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Abstract. **Objective:** Non recognition of any of the three colors is known as color blindness. Color blindness is the commonly used term for deficiency of color vision. Word color blindness is a misnomer as anyone labeled as it, is extremely rare to be totally color blind hence more correctly called color vision deficiencies (CVD). Color vision is a function of three types of cone pigments present in retina. The incidence of Color vision deficiency is common in medical profession and affects the diagnosis and treatment of patients but still it remains the most neglected aspect of vision. Color is very important sign used in medical profession, but there is no effective screening for Color Vision Deficiency (CVD) at any level of medical profession. The present study was undertaken to find out CVD in medical students of Government medical college Srinagar.

Material and Method: A total of 300 medical students (MBBS, BDS, NURSING) including 154 males and 146 females between 18-20 years of age were examined for CVD in Medical College using Ishihara pseudoisochromatic plates. After taking history on structured proforma the students were shown Ishihara's test plates under day light at normal reading distance.

Results: Among 154 males, 11 were color deficient (7.14%), and among 146 females, 1 (0.68%) had color vision deficiency. Deutranomalia (41.6%) was the most common type of CVD followed by Protanomalia (25%) then Protanopia (16.7%) and Deutranopia (16.7%), respectively.

Conclusions: With this high incidence of color vision deficiency, students with CVD may feel difficulty in day-today practice in medical field. So, screening for CVD in medical students at the time of admission is very important which may help in early management of CVD and with timely counseling proper adaptive strategies can be adopted.

Keywords: Ishihara's pseudoisochromatic plates, Color vision deficiency (CVD), Photo pigments.

Introduction

Use of color is considerably more prevalent in today's information oriented environment with the advent of color computer displays and printers. Research in such matters shows that there is an increasing need for improvement in color vision standards and need for further study, as well as more effective screening and test methods [1].

Non recognition of any of the three primary colors is known as color blindness. The term Protanopia refers to red color, deuteranopia to green and tritanopia to blue color blindness. Therefore, individuals having normal color vision are known as trichromates [2]. Color vision depends on the different spectral sensitivities of the three types of cones. Humans have three different kinds of cones, and each expresses a photopigment with a different absorbance spectrum [3]. Nathans and colleagues isolated and sequenced the genes encoding the human long wavelength (L), middle wavelength (M) and short wavelength (S) cone opsins and took the first steps toward testing the long-held, two-part hypothesis that (a) variation in the amino acid sequences of the cone opsins are responsible for the spectral differences among the photopigments that all share the same 11-cis retinal chromophore, and (b) alterations in the cone opsin genes underlie inherited color vision deficiencies [4].

Color is commonly used as a descriptive and diagnostic sign in clinical practice. The use of color is prevalent in multiple clinical disciplines such as histology, pathology, biochemistry. Color is also being used in clinical investigations, such as those involving color doppler studies and coding purposes [5]. Color is often used as a sign in the practice of medicine. It gives information about surface and below surface phenomena. Many descriptive and diagnostic terms in common use indicate its value when used in this way; jaundice, cyanosis, erythema, rubella, malar flush are examples. It is also used in histology, biochemistry, and coding for many new technologies. Various specialties in medicine are related to color vision. The importance of correct or normal color vision should not be underestimated [6]. Doctors with color vision deficiencies (CVD) have published accounts of their experiences in medical practice. Physicians [7], GPs [8], neurologists [1] and other specialists reported a wide range of difficulties and many were common to all. Blushing, pallor, faint rashes, cyanosis, erythema, blood in body products, ophthalmoscopy, otoscopy and microscopy could all cause difficulties in observation. Histopathologists and medical laboratory scientific officers use variety of stains as an aid to diagnosis. They should have their color vision tested because there are evidences that these professionals with color vision deficiency have problems with histopathological diagnosis [9]. Color vision is a critical component of restorative and esthetic dentistry, but dentists as a group do not have color vision tested at any time during their career [10]. Koningsberger et al. (1994) reported that color vision deficiencies were detected in 8% of Dutch gastrointestinal endoscopist, affects an endoscopist's diagnostic skill [11].

Color is used as a didactic tool in schools to identify objects and to group objects and ideas. In addition, it is used as a systematic identifier in some learning systems, such as the Cuisenaire method. Therefore, it is unfortunate that a high proportion of school children are unaware of their color vision deficiency [12].

Table 1. Gender distribution

Variables	Frequency	Percentage
Boys	154	51.4
Girls	146	48.6
Total	300	100.0

Out of total 300 subjects, 154(51%) were boys and 146(48.6%) were girls

Table 2. Percentage distribution of CVD

Variable (CVD)	Frequency	Percentage
Present	12	4.16
Absent	288	95.84
Total	300	100.0

Color vision deficiency was present in 12(4.16%) and absent in 288(95.84%) students, respectively. Overall frequency of color vision deficiency was 4.16% in medical students while as 95.84% students had normal color vision

Material and methods

Settings: The study was performed in the Postgraduate Department of Physiology, Government Medical College Srinagar. The study period was from October 2017 to October 2018.It was an observational study. Detailed informed consent was taken from students and relevant information regarding name, age, gender, h/o consanguity of marriage in parents, marital status, medical history and drug history was collected on structured proforma. Color vision testing was done using Ishihara pseudoisochromatic plates 38 plates (latest edition).

Results

In this observational study, 300 medical students within age group of 18-20 were studied with 154 (51.4%) boys and 146 (48.6%) girls as shown in Table 1. Among 300 students the overall percentage of CVD was 4.16% (12) as shown in Table 2. The prevalence of color vision deficiency among boys was 7.14 % (11) and among girls was 0.68% (1) with the p value of 0.004 showing statistically significant relation as shown in Table 3. The prevalence of color vision deficiency is significantly higher in boys than girls which reinforce the fact of x-linked recessive nature of the defect. Genes for color vision are located on x-chromosome since males have single x-chromosome while as females have two x-chromosome which acts as dosage compensation. In our study of 300 students, 4 (41.6%) had Deutranomalia,3(25%) had Protanomalia followed by Deutranopia and Protanopia in 2(16.7%) each as shown in Table 4.

Figure 1 shows the various activities that can be affected by color vision deficiency among various stages of life hence showing the importance of color vision in medical students.

Discussion

In the USA, prevalence of CVD in junior medical students was 12.8% [14], and in dental students it was 7.8% [15]. In UK, prevalence among histology students was 8.7% [16]. In Western

Table 3. GENDER DISTRIBUTION OF CVD

Gender	CVD Present	CVD absent	Frequency	Percentage
Boys	11	143	154	7.14
Girls	1	145	146	0.68

Chi-square=8.14, p=0.004

Frequency of color vision deficiency in boys is higher with 7.14% as compared to girls with 0.68% only. The p value of 0.004 is statistically significant for gender distribution of color vision deficiency hence reinforcing the fact of male prepondence and recessive nature of deficiency

Table 4. Percentage of different types of CVD

Types of CVD	Males	females	Percentage
Deutranomalia	4	1	41.6
Deutranopia	2	Nil	16.7
Protanomalia	3	nil	25
Protanopia	2	nil	16.7

The commonest type of color vision deficiency among medical students was Deutranomalia followed by protanomalia

Nepal, in a study on 964 school children (10–19 years' age group), CVD was found in 18 boys with prevalence of 3.8%, but none of the girls was found affected [17]. Mughal IA et al. reported 2000 Medical Students including 750 males and 1250 females between 18-21 age were examined for CVD using Ishihara plates, among 750 boys 18 were color deficient (2.4%) and among 1250 girls 56 were color deficient (4.48%) [18]. John L Campbell, Anthony J Spalding, Fraz A Mir, Jennifer Birch (1999) compared CVD a group of doctors with CVD with a control group. Doctors with CVD differed from controls in respect of their ability to detect, and in their confidence in the assessment of, abnormalities presented in clinical photographs. These findings suggest that doctors with CVD should take special care to ensure safe clinical practice [19]. Color blindness deficiency has a high prevalence and is often a handicap in every life. Those who have color blindness deficiency will be better able to adapt and make more inherited career choices, if they know about their deficiency [20].

Color vision is so crucial for medical profession that previously without any statutory provision students were barred from pursuing MBBS course, various colleges and Medical Council of India (MCI) were arbitrarily denying admissions to candidates suffering from CVD, popularly called color blindness. It is only after an important judgment was given by Supreme Court of India on 31st July 2017 that students with CVD were allowed admission in MBBS courses in Medical colleges.

Prevocational screening for CVD and further testing for severity are practiced for a number of occupations where certain standards of color vision are required, but, as far as is known, medical students are screened at only one university of the United Kingdom [21,22] and at a few in the rest of words [23].

Conclusion and suggestions

- Due to higher incidence of color vision deficiency, the medical students with CVD may feel difficulty in identifying Specimens, histology slides, microscopic study during hematology, microbiology and pathology practical's and also while examining patients leading to failure in clinical examination, and difficulty in medical practice. The findings that doctors commonly are neither aware about their deficiency nor its severity and those doctors who are aware of their limitations are more likely to make corrections. Various evidences suggest the need for action in medical profession which includes screening for CVD in medical students, medical laboratory technologist and doctors, not only at the time of selection, but also periodically during training/practice. This would facilitate the detection and management of congenital color vision deficiency (CCVD) as well acquired color vision deficiency (ACVD) more effectively. Further testing for severity and counseling to be done so that informed choice of career can be made.
- Increasing the awareness about color vision deficiency and its impact on various stages of life.
- Genetic counseling in the regions with high prevalence of color vision deficiency will decrease the birth of children with this deficiency.
- Teachers should be trained to perform screening test for color vision deficiency along with visual acuity in schools and to modify their means of teaching in order to accommodate children with the deficiency.
- Screening in college especially medical colleges at the time of admission can be valuable in determining career options as well as specializations.
- Doctors with color vision deficiency should avoid following specialties where normal color vision is crucial i.e. Histopathology, Microbiology, Hematology, Dermatology, Ophthalmology, Surgery and Anesthesia.
- Test for color vision should be a part of ophthalmic examination.

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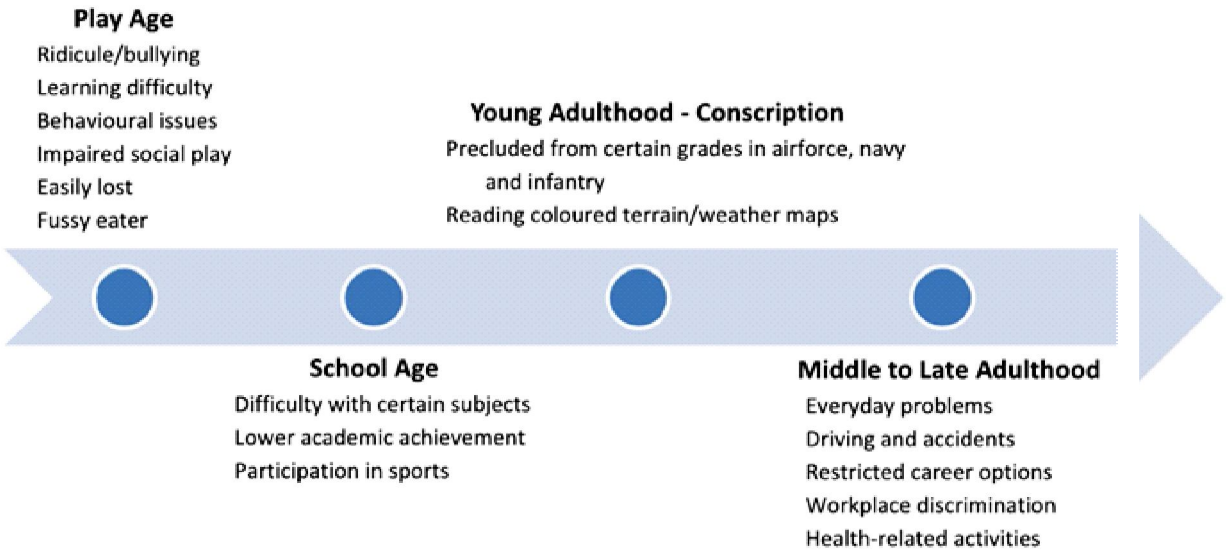

Figure 1.Summary of activities that can be affected by CVD across various stages of life (13)

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